ORIGINAL

TEP
Tucson Electric Power
88 East Broadway Blvd., P.O. Box 711,
Tucson, AZ 85702

March 1, 2018

Docket Control
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Re: Notice of Filing – Tucson Electric Power Company's Annual Demand-Side Management ("DSM") Progress Report, Docket No. E-00000U-18-0055

The Electric Energy Efficiency Standards set forth in the Arizona Administrative Code, Section R14-2-2409.A require Tucson Electric Power Company ("TEP") to submit an annual DSM progress report for each of its Commission-approved DSM programs by March 1st. TEP hereby files its DSM Progress Report for 2017. The Measurement, Evaluation and Research Report listed in Appendix 1 of the DSM Progress Report contains confidential information and is being provided directly to Commission Staff.

If you have any questions, please contact me at (520) 884-3680.

Sincerely,

Melissa Morales
Regulatory Services

cc: Compliance Section, ACC

Tucson Electric Power

2017
Annual DSM
Progress Report

Docket No. E-00000U-18-0055

March 1, 2018

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Definitions

"AAC" means the Arizona Administrative Code.

"ADOH" means the Arizona Department of Housing

"APS" means Arizona Public Service.

"ASHRAE/IESNA" means the American Society of Heating, Refrigerating and Air-Conditioning Engineers / the Illuminating Engineering Society of North America

"Baseline" means the level of electricity demand, electricity consumption, and associated expenses estimated to occur in the absence of a specific DSM program, determined as provided in R14-2-2413

"CFL" means Compact Fluorescent Light bulb.

"CHP" means combined heat and power, which is using a primary energy source to simultaneously produce electrical energy and useful process heat.

"C&I" means Commercial and Industrial.

"Commission" means the Arizona Corporation Commission.

"Consumer Education and Outreach" means a program to provide general consumer education about energy-efficiency improvements.

"Cost-effective" means that total incremental benefits from a DSM measure or DSM program exceed total incremental costs over the life of the DSM measure, as determined under R14-2-2412.

"DOE" means the United States Department of Energy.

"Demand savings" means the load reduction, measured in kW, occurring during a relevant peak period or periods as a direct result of energy efficiency and demand response programs.

"DSM" means demand-side management, the implementation and maintenance of one or more DSM programs Energy Efficiency ("EE").

"DSM measure" means any material, device, technology, educational program, pricing option, practice, or facility alteration designed to result in reduced peak demand, increased energy efficiency, or shifting of electricity consumption to off-peak periods and includes CHP used to displace space heating, water heating, or another load.

"DSM program" means one or more DSM measures provided as part of a single offering to customers.

"EPA" means the United States Environmental Protection Agency.

"HVAC" means Heating, Ventilation and Air Conditioning.

"Incremental costs" means the additional expenses of DSM measures, relative to baseline.

"IC" means an implementation contractor, a contractor hired to implement a program.

"kW" means kilowatt.

"kWh" means kilowatt-hour.

"LED" means Light Emitting Diode light bulb.

"Load management" means actions taken or sponsored by an affected utility to reduce peak demands or improve system operating efficiency, such as direct control of customer demands through affected-utility-initiated interruption or cycling, thermal storage, or educational campaigns to encourage customers to shift loads.

"Low-income customer" means a customer with a below average level of household income, as defined in an affected utility's Commission-approved DSM program description.

"MER" means measurement, evaluation, and research. The process of identifying current baseline efficiency levels and the market potential of DSM measures; performing process and program evaluations including the verification of installed energy efficient measures and reported savings; and identifying additional energy efficiency research opportunities.

"MW" means a Megawatt, 1,000 kilowatts or 1,000,000 watts

"MWh" means a Megawatt Hour, 1,000 kilowatt hours

"NCI" means Navigant Consulting, Inc.

"Net benefits" means the incremental benefits resulting from DSM minus the incremental costs of DSM.

"Program costs" means the expenses incurred by an affected utility as a result of developing, marketing, implementing, administering, and evaluating Commission-approved DSM programs.

"Program Implementation" means the implementation of programs including administration, fiscal management of costs for labor, overhead, implementation contractors, or other direct program delivery.

"Program Marketing" means the marketing of programs and increasing DSM consumer awareness (direct program marketing as opposed to general consumer education).

"Planning and Administration" means planning, developing, and administering programs including management of program budgets, oversight of the RFP process, oversight of ICs, program development, program coordination, customer participation, and general overhead expenses.

"Program Development, Analysis, and Reporting" means the research and development of new DSM program opportunities, analysis of existing and proposed programs and measures, and the tracking and reporting of participation, savings, and benefits. Associated costs are essential to comply with the Commission reporting and rules requirements.

"Rebates & Incentives" means payments made to customers or contractors as rebates or incentives.

"RESNET" means the Residential Energy Services Network.

"RFP" means Request for Proposal, the process through which proposals are solicited from contractors or vendors.

the "Standard" means the reduction in retail energy sales, in percentage of kWh, required to be achieved through TEP's approved DSM programs as prescribed in the State of Arizona Administrative Code Article 24, Section R14-2-2404.

"Therm" means 100,000 Btus (British thermal units)

"Thermal envelope" means the collection of building surfaces, such as walls, windows, doors, floors, ceilings, and roofs, that separate interior conditioned (heated or cooled) spaces from the exterior environment.

"Training and Technical Assistance" means Energy-efficiency training and technical assistance for utility employees, contractors, or building officials.

"TEP" or "Company" means Tucson Electric Power Company.

"UNS Electric" means UNS Electric, Inc.

"UNS Gas" means UNS Gas, Inc.

All other terms and definitions associated with the DSM Annual Report are contained in A.A.C. R14-2-2401.

DSM PROGRESS REPORT

1. An analysis of the Company's progress toward meeting the annual energy efficiency standard

a. Progress Towards the Standard

In accordance with Decision No. 71819 (August 10, 2010) and Arizona Administrative Code ("ACC") Section R14-2-2409 (effective January 1, 2011), TEP submits this annual DSM progress report for calendar year 2017. This report includes information for all of TEP's residential, non-residential, and low-income customer programs that were in place during this reporting period.

In 2017, TEP achieved cumulative savings of 14.12% compared with the EE Standard of 14.50%. TEP's DSM savings, expenditures, societal benefits, incentives, and environmental savings are summarized in Tables 1-5 below.

Table 1	Cumulative Energy Savings As Compared to The Standard
Table 2	Energy Savings By Program
Table 3	Expenses By Program
Table 4	Energy Savings And Societal Benefits
Table 5	Lifetime Environmental Savings By Program

TEP's cumulative energy savings as compared to the Standard are reported in Table 1 below.

Table 1 – Cumulative Energy Savings Compared to The Standard

Year	Retail Energy Sales (MWh)	Incremental Annual Energy Savings (MWh)	Cumulative Annual Energy Savings (MWh)	Cumulative Annual Savings as a Percent of previous year Retail Sales	Cumulative EE Standard
2010	9,291,788				
2011	9,332,107	139,539	139,539	1.50%	1.25%
2012	9,264,818	105,655	245,194	2.63%	3.00%
2013	9,278,918	177,425	422,619	4.56%	5.00%
2014	8,520,347	221,215	643,834	6.94%	7.25%
2015	8,431,556	168,600	812,434	9.54%	9.50%
2016	8,387,868	199,466	1,011,900	12.00%	12.00%
2017	8,385,448	172,198	1,184,098	14.12%	14.50%

Freeport-McMoran Inc's DSM Surcharge Exemption

Per Decision No. 74885 (December 31, 2014) Freeport-McMoran Inc's ("FMI") Sierrita Mine is exempt from the DSM surcharge contingent upon FMI providing TEP with "an annual count of the number and horsepower of high efficient motors installed at the Sierrita Mine and data on any energy efficiency measures/projects which are installed at the Sierrita Mine, sufficient to enable the calculation of energy savings." During this reporting period, FMI reported installing high-efficiency motors, variable speed drives and LED lighting. FMI reported a total of 4 variable speed drives ("VSD"), 48 high efficiency motors, and 103 LED lights. The VSDs installations support 100 hp, the motors 9,804.5 horsepower, and LED lighting 6.2 kW.

Annual and Lifetime Savings

The DSM portfolio annual and lifetime energy savings are reported in Table 2. Savings are separated into the following categories:

- Capacity Savings (MW)
- Annual MWh Savings
- Annual Therm Savings
- Lifetime MWh Savings
- Lifetime Therm Savings

TEP is including energy savings toward the Standard for changes in energy efficient building codes per AAC R14-2-2404(E). Energy savings from the Energy Codes and Standards program are reported in Table 2 below.

Table 2 - Energy Savings by Program[1]

Program	Capacity Savings MW	Annual MWh Savings	Annual Therm Savings	Lifetime MWh Savings	Lifetime Therm Savings
Residential Programs					
Appliance Recycling	0.00	0	0	0	0
Efficient Products	3.7 0	35,347	16,790	587,304	184,693
Existing Homes Retrofit and Audit Direct Install	3.11	3,941	8,463	60,524	145,322
Low-Income Weatherization	0.59	2,134	9,070	40,854	153,710
Multi-Family	1.42	3,393	10,942	61,399	218,839
Residential New Construction	1.61	1,966	134,050	59,975	4,021,495
Shade Tree Program	0.20	477	0	19,095	0
Non-Residential Programs[2]					
Bid For Efficiency (Pilot)	0.01	113	0	1,654	0
CHP Program (Pilot)	0.00	0	0	0	0
C&I Comprehensive Program	6.67	40,906	0	725,390	0
Commercial New Construction Program	0.14	1,182	0	14,690	0
Retro-Commissioning	0.39	794	0	7,940	0
Schools Energy Efficiency Program (Pilot)	0.14	1,655	0	15,529	0
Small Business Direct Install	0.36	4,188	0	51,486	0
Behavioral Sector					
Behavioral Comprehensive	0.38	4,566	46,009	121,129	1,046,840
Home Energy Reports	0.81	5,711	0	53,793	0
Support Sector					
Consumer Education & Outreach Program	0.00	0	0	0	0
Energy Codes and Standards	2.25	10,086	0	10,086	0
Utility Improvement Sector					
C&I Direct Load Control Program	31.31	20,445	0	20,445	0
Conservation Volt Reduction	0.00	0	0	0	0
Generation Improvement and Facilities Upgrade	0.00	0	0	0	0
Credits					
Pre-Rule Credit for 2017	0.00	35,294	0	35,294	0
Portfolio Totals	**53.08**	**172,198**	**225,324**	**1,885,586**	**5,770,900**

[1] Capacity savings for C&I Direct Load Control reflect the maximum capacity available for reduction events. Annual MWh savings for C&I Direct Load Control reflect the credit available toward the Standard per AAC. R14-2-2404 (C). TEP is also including an energy savings credit toward the Standard for changes in energy efficient building codes per AAC R14-2-2404(E).

b. DSM Annual Expenses

The annualized expenses for each program are reported in Table 3. Expenses are separated into the following categories:

- Rebates and Incentives
- Training and Technical Assistance
- Consumer Education
- Program Implementation
- Program Marketing
- Planning and Administration
- Measurement, Evaluation, and Research

Table 3 - Expenses by Program

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Residential Programs								
Appliance Recycling	$0	$0	$0	$50	$0	$0	$120	$170
Efficient Products	$993,995	$24,340	$0	$790,611	$41,979	$9	$33,215	$1,884,150
Existing Homes Retrofit and Audit Direct Install	$1,774,404	$200	$0	$619,444	$13,078	$0	$5,365	$2,412,491
Low-Income Weatherization	$486,022	$3,036	$4,939	$6,320	$0	$131	$580	$501,028
Multi-Family	$807,273	$0	$0	$518,519	$902	$0	$3,764	$1,330,459
Residential New Construction	$299,700	$2,108	$0	$6,973	$26,141	$0	$1,641	$336,563
Shade Tree Program	$141,011	$523	$0	$643	$2,456	$0	$652	$145,285
Total for Residential Programs	$4,502,405	$30,208	$4,939	$1,942,561	$84,557	$140	$45,337	$6,610,146
Non-Residential Programs								
Bid For Efficiency (Pilot)	$35,485	$0	$0	$31,514	$0	$0	$99	$67,097
CHP Program (Pilot)	$0	$0	$0	$0	$0	$0	$0	$0
C&I Comprehensive Program	$3,850,448	$3,265	$383	$854,291	$8,613	$0	$43,130	$4,760,128
Commercial New Construction Program	$114,220	$0	$0	$66,334	$0	$0	$1,371	$181,925
Retro-Commissioning	$49,291	$0	$0	$29,797	$0	$0	$48	$79,136
Schools Energy Efficiency Program (Pilot)	$647,270	$0	$0	$71,765	$0	$0	$0	$719,036
Small Business Direct Install	$454,830	$325	$594	$297,235	$3,224	$0	$21,645	$777,852
Total for Non-Residential Programs	$5,151,543	$3,590	$976	$1,350,936	$11,836	$0	$66,293	$6,585,174
Behavioral Sector								
Behavioral Comprehensive	$150,664	$9,300	$0	$211,375	$37,651	$6,757	$5,363	$421,110
Home Energy Reports	$234,069	$0	$0	$406,323	$0	$12	-$1,613	$638,792
Total Behavioral Sector	$384,733	$9,300	$0	$617,698	$37,651	$6,769	$3,749	$1,059,901
Support Sector								
Consumer Education & Outreach Program	$0	$0	$291,777	$13,181	$217,153	$172	$513	$522,796
Energy Codes and Standards	$0	$3,016	$0	$0	$0	$0	$40	$3,057
Total for Support Programs	$0	$3,016	$291,777	$13,181	$217,153	$172	$553	$525,853
Utility Improvement Sector								
C&I Direct Load Control Program	$0	$3,646	$0	$489,150	$0	$27,627	$3,409	$523,832
Conservation Volt Reduction	$0	$0	$0	$0	$0	$0	$0	$0
Generation Improvement and Facilities Upgrade	$0	$0	$0	$0	$0	$0	$0	$0
Total for Utility Improvement Sector	$0	$3,646	$0	$489,150	$0	$27,627	$3,409	$523,832
Portfolio Totals	**$10,038,681**	**$49,761**	**$297,692**	**$4,413,526**	**$351,197**	**$34,708**	**$119,341**	**$15,304,907**
							Program Costs	**$15,304,907**
							Program Development, Analysis, and Reporting	**$557,779**
							TOTAL	**$15,862,686**

c. **Societal Benefits and Performance Incentives**

The portfolio societal benefit calculation and performance incentive calculation are reported in Table 4. TEP's portfolio Societal Cost Test ratio for 2017 is 2.40 and includes all program costs and labor.

Per Decision No. 73912 (June 27, 2013) TEP's performance incentive is calculated at 8 percent of DSM net economic benefits, capped at $0.0125 per kWh, whichever is less. TEP's performance incentive for calendar year 2017 caps at the annual kWh savings multiplied by $0.0125 per kWh and is $1,579,085.

Table 4 - Energy Savings And Societal Benefits

DSM Program	Annual MWh Savings	Societal Benefit	Societal Costs	Net Benefit
Residential				
Appliance Recycling	0	$0	$170	-$170
Efficient Products	35,347	$15,012,923.18	$4,398,621	$10,614,302
Existing Homes Retrofit and Audit Direct Install	3,941	$5,325,393	$2,643,952	$2,681,442
Low-Income Weatherization	2,134	$1,603,768	$797,749	$806,019
Multi-Family	3,393	$3,358,956	$1,693,717	$1,665,239
Residential New Construction	1,966	$5,146,022	$1,298,882	$3,847,140
Shade Tree Program	477	$724,760	$302,781	$421,979
Total for Residential	47,257	$31,171,822	$11,135,872	$20,035,950
Non-Residential				
Bid For Efficiency (Pilot)	113	$67,750	$36,493	$31,257
CHP Program (Pilot)	0	$0	$0	$0
C&I Comprehensive Program	40,906	$28,428,560	$11,739,736	$16,688,825
Commercial New Construction Program	1,182	$673,149	$273,816	$399,333
Retro-Commissioning	794	$490,944	$409,335	$81,609
Schools Energy Efficiency Program (Pilot)	1,655	$701,536	$718,763	-$17,227
Small Business Direct Install	4,188	$1,826,218	$980,361	$845,858
Total for Non-Residential	48,838	$32,188,157	$14,158,503	$18,029,654
Behavioral Sector				
Behavioral Comprehensive	4,566	$3,459,274	$589,553	$2,869,721
Home Energy Reports	5,711	$1,280,165	$648,699	$631,466
Total for Behavioral Sector	10,277	$4,739,439	$1,238,252	$3,501,187
Support Programs				
Consumer Education & Outreach Program	N/A	N/A	$522,796	N/A
Total for Support Programs	N/A	N/A	$522,796	N/A
Utility Improvement Sector				
C&I Direct Load Control Program	20,445	N/A	$523,832	N/A

Total for Utility Improvement Sector	20,455	N/A	$523,832	$523,832
Portfolio Totals	126,818	$68,099,418	$27,579,255	$40,520,163
Program Development, Analysis & Reporting	N/A	N/A	$557,779	N/A
TOTAL	126,818	$68,099,418	$28,137,035	$39,962,383
Performance Incentive Calculation:				
Total kWh Savings	126,817,926			
Total Net Benefits	$39,962,383			
8% Net Benefits	$3,196,991			
% Net Benefits Cap = Total kWh savings X $0.0125	$1,585,224			
Performance Incentive for 2017[a]	**$1,585,224**			

[a]Performance Incentive Calculations do not include kWh Savings and Net Benefits of non-qualifying programs (Energy Codes and Standards, CVR, GIF) or 2017 Pre-Rule Credit.

d. Lifetime Environmental Savings

The lifetime savings for each program are reported in Table 5. Savings are separated into the following categories:

- sulfur oxides ("SOX"),
- nitrogen oxides ("NOX"),
- carbon dioxide ("CO2"),
- and water consumption.

Table 5 - Lifetime Environmental Savings by Program

Program	Lifetime SOX Reduction (lbs)	Lifetime NOX Reduction (lbs)	Lifetime CO2 Reduction (lbs)	Lifetime Water Reduction (gallons)
Residential Programs				
Appliance Recycling	0	0	0	0
Efficient Products	1,264,583	1,525,816	1,124,576,021	270,159,948
Existing Homes Retrofit and Audit Direct Install	130,320	157,240	115,891,322	27,840,887
Low-Income Weatherization	87,967	106,139	78,227,507	18,792,806
Multi-Family	132,204	159,514	117,567,106	28,243,465
Residential New Construction	126,984	153,216	112,925,041	27,128,289
Shade Tree Program	41,116	49,609	36,563,665	8,783,789
Non-Residential Programs				
Bid For Efficiency (Pilot)	3,561	4,297	3,167,068	760,833
CHP Program (Pilot)	0	0	0	0
C&I Comprehensive Program	1,561,911	1,884,564	1,388,984,797	333,679,585
Commercial New Construction Program	31,630	38,163	28,127,720	6,757,199
Retro-Commissioning	17,096	20,628	15,203,629	3,652,409
Schools Energy Efficiency Program (Pilot)	33,436	40,343	29,734,204	7,143,129
Small Business Direct Install	110,859	133,760	98,585,226	23,683,396
Behavioral Sector				
Behavioral Comprehensive	260,816	314,694	231,939,800	55,719,527
Home Energy Reports	115,827	139,754	103,003,144	24,744,725
Support Sector				
Consumer Education & Outreach Program	0	0	0	0
Energy Codes and Standards	21,717	26,204	19,313,051	4,639,627
Utility Improvement Sector				
C&I Direct Load Control Program	44,022	53,116	39,148,290	9,404,700
Conservation Volt Reduction	0	0	0	0
Generation Improvement and Facilities Upgrade	0	0	0	0
Portfolio Totals	**3,984,049**	**4,807,059**	**3,542,957,591**	**851,134,312**

2. A list of the 21 current Commission-approved DSM programs and DSM measures, organized by customer segment

Commission Approved DSM Programs	
Residential Sector	
4.1	Appliance Recycling
4.2	Efficient Products
4.3	Existing Homes Retrofit and Audit Direct Install
4.4	Low-Income Weatherization
4.5	Multi-Family Homes
4.6	Residential New Construction
4.7	Shade Tree
Non-Residential Sector	
4.8	Bid for Efficiency (Pilot)
4.9	Combined Heat & Power ("CHP") (Pilot) Program
4.10	Commercial & Industrial ("C&I") Comprehensive Program
4.11	Commercial New Construction Program
4.12	Retro-Commissioning
4.13	Schools Energy Efficiency Pilot
4.14	Small Business Direct Install and Schools Facilities
Behavioral Sector	
4.15	Behavioral Comprehensive
4.16	Home Energy Reports
Support Sector	
4.17	Consumer Education and Outreach
4.18	Energy Codes and Standards Program
Utility Improvement Sector	
4.19	Commercial and Industrial Direct Load Control Program
4.20	Conservation Voltage Reduction
4.21	Generation Improvement and Facilities Upgrade

A list of Commission approved DSM programs and measures is attached in **Appendix 1.**

3. A description of the findings from any research projects completed during the previous year
TEP's DSM and Customer Solutions staff review various EE technologies on an ongoing basis during:

- program administration,
- solicitation for bids for services,
- when conducting research on measures for inclusion in future DSM implementation plans,
- when attending conferences, and
- exchanging best practices with peer utilities.

The following research projects were completed in 2017:

- Distributed Energy Resource Management Systems ("DERMS") and Load Management: TEP (along with UNS Electric) are developing methods to launch connected products in existing homes

and small businesses that will provide customers with an interface for managing their energy consumption and demand. TEP is exploring ways to partner with residential new home developers and builders to introduce connected products at or near the point of purchase that have the potential to lower consumer costs, reduce consumption, and provide consumers with load management capability. TEP also continues to research product specific management platforms, as well as various manufacturer and entire Distributed Energy Resource ("DER") product line platforms. These all-inclusive DER product platforms are maturing rapidly and could help manage customer-sided technologies across various product lines to reduce energy consumption, manage load, and increase home comfort quality. DERMS platforms, although rapidly evolving, have not reached their full potential, but TEP will continue research efforts in this area.

- Voice Application: TEP is studying the use of voice application technologies, such as Amazon Alexa and Google Home, which can offer ancillary energy management services for whole home energy management. The customer experience of a voice application makes this product an attractive tool for customer-sided energy and load management. TEP is researching the use of voice application technology to understand how product lines and behavioral usage affect grid management. TEP's efforts, in part, are to understand the new architecture that is being utilized in order to analyze how product communication protocols and security are implemented/affected. This product could be utilized as the operating system for the smart connect home in the near future.

- Electric Vehicle ("EV") Charging: TEP is researching EV charging infrastructure ranging from Level 2 charging capabilities to the oncoming Level 4+ DC Fast Charging. Level 2 charging currently is the most common option, for residential EV charging options as well as most non-residential customers, for either fleet or employee charging. DC Fast Charging or Level 3 and above, can serve as a grid interactive opportunity for our customers as well as creating a DER option that may allow TEP to couple storage with charging locations when possible. Although this type of technology is a leap forward for a greater customer experience, the understanding and interactivity of these chargers will be key for greater visibility of on-peak charging and load management. Continued research of this progressive technology and product line will continue.

- Energy Storage: Research into new energy storage technologies, as well as communication protocols for customer-side product options, were reviewed in 2017 and continue to be reviewed for the 2018 Load Management Pilot. The current technologies are maturing, but are still not at a state of being viable as an uninterruptable cost-effective option. TEP continues to examine benefits and uses for energy storage such as ancillary services, including VAR-support, and voltage regulation, as well as increased reliability for residential, commercial, and industrial customers serving as a potential energy backup source in the case of outages. As part of the technology review, the possibility of on-peak load leveling and peak shaving is being considered, while also conversely using storage for load growth opportunities during off-peak times.

- Residential and Commercial Incremental Cost Updates: Incremental costs require ongoing updates for a number of measures and measure categories due to rapidly changing market realities. Navigant undertook significant incremental cost research during 2017 to address areas for incremental cost updating within commercial and residential program measure categories. Due to the wide variety of measures featured in TEP's EE programs, the Navigant team utilized a variety of approaches in updating existing cost information. Some common methodologies include online cost research, webscraping, in-store cost research, interviews with retailers, distributors and contractors, and software modeling. In each case, Navigant employed the method with the most appropriate rigor and cost-effectiveness to a given measure-level incremental cost update. As in past years, the Navigant team worked with TEP to prioritize measures for which to conduct incremental cost research during 2017, with an emphasis on categories experiencing rapid price shifts.

- Quarterly Savings Verification: Navigant's MER report provides a portfolio-level summary of energy (kWh and therms) and coincident demand savings achieved through the end of each quarter (Q1, Q2, Q3 and Q4) of Program Year 2017 for each of the three operating utilities (TEP, UNS Electric and UNS Gas). Measure Analysis Spreadsheets developed and maintained by the Navigant team working with TEP's to keep current, include cost and benefit calculations for each program measure, TEP relies on these parameters for screening program cost-effectiveness.

4. Information on the DSM programs

Residential Sector

4.1 Appliance Recycling

a. Description

The Appliance Recycling Program is designed to remove and recycle inefficient refrigerators and freezers. National studies indicate that approximately 20 percent of customers have at least one secondary inefficient refrigerator or freezer in their home which is a significant potential for energy savings. This program removes inefficient appliances that may otherwise remain in service either at the customer's home or be donated or re-sold. In addition to providing customers with an incentive the program removes the usual barriers of taking these appliances offline by eliminating the cost and/or inconvenience associated with disposing of the appliance.

b. Program Goals, Objectives, and Savings Targets

The objectives of the program are to:

- Remove old and inefficient refrigerators and freezers from customer's homes;
- Permanently remove the inefficient refrigerators and freezers from the grid; and
- Recycle the refrigerators and freezers in an environmentally responsible way.

- A spending goal and savings target was not established for 2017 due to program inactivity.

c. Levels of Participation

Due the unforeseen ceasing of operations by the implementation contractor, JACO Environmental, Inc. on November 20th, 2015, the Appliance Recycling Program was temporarily suspended. In 2016, TEP, in conjunction with UNS Electric, released an RFP to restart the program but did not receive a proposal that met all requirements of the program. In 2017, TEP, in conjunction with UNS Electric, decided not to issue a second RFP due to the market instability of the implementation contractors brought upon by metal prices and an internal solution being cost prohibitive.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Appliance Recycling	$0	$0	$0	$50	$0	$0	$120	$170

e. Evaluation and Monitoring Activities and Results

There was no third-party MER activity during this reporting period. Associated MER costs listed above were incurred during the second RFP process.

f. kW, kWh, and Therm Savings

There were no savings during this reporting period.

g. Environmental Benefits realized

There were no environmental benefits realized during this reporting period.

h. Incremental benefits and net benefits

There were no incremental benefits and net benefits realized during this reporting period.

i. Performance-incentive calculations for the previous year

There is no performance incentive for this program for this reporting period.

j. Problems Encountered and Proposed Solutions

Due to unforeseen ceasing of operations by the implementation contractor, JACO Environmental, Inc. on November 20th, 2015, the Appliance Recycling Program was temporarily suspended. In 2016 TEP released an RFP to restart the program but did not receive a proposal that met all requirements of the program. In 2017, TEP, in conjunction with UNS Electric, decided not go out for a second RFP due to the market instability of the implementation contractors brought upon by metal prices and an internal solution being cost prohibitive. The Companies will propose in their 2018 Implementation Plan, to have the program terminated.

k. Program Modifications

No modifications were made to this program during the reporting period because the program was not active during 2017.

l. Programs or Measures Terminated

TEP plans to terminate this program and associated measures in 2018.

4.2 Efficient Products Program

a. Description

The Efficient Products program promotes the purchase of energy efficient retail products through in-store buy-downs and product promotions, and the promotion of EE products in general. This program has been in existence since 2008, and was most recently approved by the Commission in Decision No. 75450.

In the 2017 program year, the TEP Efficient Products program included Residential LEDs, variable speed pool pumps, and Energy Star appliances. The Efficient Products Program promotes the installation of energy efficient products by residential customers in the TEP service territory. TEP provides funds to manufacturers of ENERGY STAR® approved LEDs to reduce the up-front product cost and partners with local retailers to pass these savings onto the consumer. TEP also partners with retailers to further transform the market through training retail staff, customer education, and increased stock and selection of ENERGY STAR® lighting and appliance products. Pool pump incentives are paid to an installing contractor with the customer receiving an instant rebate at the time of purchase.

b. Program Goals, Objectives, and Savings Targets

The program offers customers opportunities to reduce their energy consumption by purchasing energy efficient retail products, and furthers the transformation of the market through retail partnerships, training retail staff, and increased retail stocking and selection of efficient products.

The objectives of the program are to:

- Reduce peak demand and overall energy consumption of homes and small businesses;
- Increase the purchase of ENERGY STAR® products;
- Increase the availability of ENERGY STAR® lighting products in the marketplace; and
- Increase the awareness and knowledge of retailers and TEP customers on the benefits of ENERGY STAR® efficient products.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

A total of 469,982 LEDs, 1,257 variable speed pool pumps, and 5,259 appliances were sold during this reporting period. An "in storage adder" was also included in the 2017 total to account for light bulbs taken out of storage and installed in 2017. Additional detail is provided in "Program Modifications" section below.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below.

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Efficient Products	$993,995	$24,340	$0	$790,611	$41,979	$9	$33,215	$1,884,150

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 2.**

Many of the program bulbs are sold in multipacks. While some of these bulbs are installed immediately, some are placed into storage to be installed as needed. As bulbs come out of storage, the savings are realized, but they are delayed. The bulbs placed into storage are accounted for with a 4.6% LED and 18% CFL In-Storage Rate (ISR).[3] According to the Uniform Methods Protocol, 97% of these in-storage bulbs are brought out of storage over a period of four years, while the remaining bulbs are never installed. Navigant follows current

[3] The ISR is the proportion of program bulbs each year assumed put into storage rather than installed immediately in sockets.

Uniform Methods Protocol in calculating the CFL and LED In-storage.[4] Because LEDs were new to the program in 2015, 2017 is the second year TEP is claiming the LED In-storage Adder.[5]

f. kW, kWh, and Therm Savings

Measure Category	No. of Measures Installed	kW Savings	kWh Savings
Appliances	5,259	87.95	647,022
Lighting	469,982	3,083	32,180,244
Pool Pumps	1,257	529	2,519,269
Totals	**476,498**	**3,699**	**35,346,535**

Savings are adjusted for line losses of 12.76 percent for both demand and energy savings (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

There were no problems encountered during this reporting period.

k. Program Modifications

No program modifications were made during this reporting period.

l. Programs or Measures Terminated

TEP does not plan to terminate this program or associated measures in 2018. No measures were terminated during this reporting period.

4.3 Existing Homes Retrofit Program

a. Description

The TEP Existing Homes Retrofit Program is designed to encourage homeowners to increase the energy efficiency of their homes. The program provides incentives for high-efficiency HVAC equipment and tune-ups, as well as home performance services such as sealing leaky duct work and installing smart thermostats. The program provides rebates to customers and direct incentives to participating contractors with the requirement that the incentives be passed on to utility customers as a line item credit toward approved measures a customer utilizes. In order for customers to participate, TEP requires customers to utilize specific participating contractors who complete Program administrative training including field mentoring.

The Existing Home Retrofit Program was originally approved in Decision No. 72028 (December 10, 2010), continued most recently in Decision No. 75450 (February 11, 2016), and is marketed as the "Efficient Home Program."

[4] http://energy.gov/sites/prod/files/2015/02/f19/UMPChapter21-residential-lighting-evaluation-protocol.pdf Page 21

[5] TEP 2017 DSM Annual Report, Appendix 3 – Navigant Consulting, Inc. Measurement, Evaluation, and Research Report

b. Program Goals, Objectives, and Savings Targets

The objectives of the program are as follows:

- To properly size and provide quality installation of high efficiency HVAC equipment, tune-up existing equipment, seal leaky ductwork, and install smart thermostats;
- Cultivate customer demand, and a qualified contractor base, for comprehensive energy efficiency retrofits in alignment with the "Home Performance with Energy Star" program.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

A total of 2,580 customers participated in the program during this reporting period.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below.

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Existing Homes Retrofit	$1,774,404	$200	$0	$619,444	$13,078	$0	$5,365	$2,412,491

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 2.**

f. kW, kWh, and Therm Saving

Measure Category	No. of Measures Installed	kW Savings	kWh Savings
HVAC	3,982	2,980	3,775,256
Tune Up	447	135	165,676
Totals	**4,429**	**3,114**	**3,940,932**

Savings are adjusted for line losses of 12.76 percent for both demand and energy savings (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

There were no problems encountered during this reporting period.

k. Program Modifications

There were no program modifications during this reporting period.

l. Programs or Measures Terminated

TEP does not plan to terminate this program or associated measures in 2018. No measures were terminated during this reporting period.

4.4 Low-Income Weatherization Program ("LIW")

a. Description

The LIW Program is designed to improve the energy efficiency of homes for customers whose income falls within the defined federal poverty guidelines. The weatherization measures installed under the LIW program educes electric bills for eligible customers and improves their comfort and quality of life. Energy savings realized from the LIW program allows low-income customers to better utilize their limited income for other items such as rent, food, or medical expenses.

b. Program Goals, Objectives, and Savings Targets

The objectives of the program are to:

- Increase the number of homes weatherized each year;
- Reduce participating low-income customer's average household utility bills by utilizing energy conservation measures as defined in the Weatherization Assistance Program Rules; and
- Improve the quality of life for customers by providing them with a safer and healthier home.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

A total of 78 homes received weatherization assistance during this reporting period. In addition, 2,261 Smart Thermostats and 25,439 LED bulbs were installed in qualifying low-income residences.

d. Costs Incurred

Costs incurred during this reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Low-Income Weatherization[a]	$486,022	$3,036	$4,939	$6,320	$0	$131	$580	$501,028

Includes $15,288.77 for health and safety related repairs and $11,726.89 for Weatherization Agencies' administrative expenses.

e. Evaluation and Monitoring Activities and Results

Navigant, with billing data from TEP, UNS Electric, and UNS Gas, analyzed energy use in weatherized homes in the three companies. The average savings per home reviewed was 2,304 kWh and 117 therms of natural gas.

f. kW, kWh, and Therm Savings[6]

The savings for this reporting period are listed below:

No. of Participants	kW savings	kWh savings	Therm savings
78	589	2,133,837	9,070

Savings are adjusted for line losses of 12.76 percent for both demand and energy (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefit

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

TEP, along with other major utilities in Arizona, continues to experience low participation from some low-income agencies. Several meetings held in 2017 with all of the state's Weatherization agencies, Arizona Community Action Association (ACAA) and the Arizona Department of Housing (ADOH) included discussions on this issue. Some agencies are having difficulty adjusting to the loss of the American Recovery and Reinvestment Act (ARRA) funding, requiring them to operate on reduced budgets and less staff. The ADOH continues to advise the agencies on best practices to maximize funds. One of the challenges faced by TEP, UNS Electric, and UNS Gas, is the funding limit per LIW household is relatively low compared to other utilities. In TEP's 2018 Implementation Plan, to foster participation, the Company will request an increase in the LIW funding.

k. Program Modifications

In 2017, TEP marketed the LIW program as the "Energy Ease Program." The Energy Ease program encompasses measures that include traditional weatherization, smart thermostats, Low Income Multifamily Direct Install, and Low Income Outreach.

TEP, in conjunction with the Tucson Urban League, continued the "Energy Ease Plus" pilot as a subprogram of the Energy Ease program, offering at no cost to customers. TEP and Tucson Urban League identified a prescriptive weatherization model that was applied to each home and allows TEP to reach more customers at a lower cost. The Energy Ease Plus effort will not affect the current LIW program's funding.

Additionally, TEP was able to distribute 25,349 LED bulbs directly to Low Income Customers through partnerships with the Sahuarita Food Bank, Arizona Bilingual Newspaper, Tucson Clinica Medica Familiar, YMCA, and other low income organizations and events. In addition, TEP included weatherization and Low Income program information with the complimentary

[6] No. of Participants only includes the number of homes weatherized. Savings include weatherization, smart thermostats, and LED bulbs.

bulbs. The bulbs were expensed through the LIW Program, thus allowing TEP to record additional savings for the bulbs within the LIW Program.

l. Programs or Measures Terminated

TEP does not plan to terminate this program or associated measures in 2018. No measures were terminated during this reporting period.

4.5 Multi-Family Housing Efficiency Program

a. Description

The Multi-Family program is an existing program approved in Decision No. 74885 (December 31, 2014) with additional measures added in Decision No. 75450 (February 22, 2016). The program targets multi-family properties with 5 or more dwelling units or more to install efficient lighting (LEDs), low-flow faucet aerators, low-flow showerheads, HVAC tune-up components including advanced tune-up, Western Cooling Controls, and duct testing and repair. Additionally, multi-family facility managers are encouraged to participate in the C&I Facilities program, which promotes measure installations in common areas.

b. Program Goals, Objectives, and Savings Targets

The EE potential in the multi-family housing market remains largely underutilized and has a significant potential to increase participation in the Company's portfolio. Various market barriers, such as split incentives, capital constraints, and lack of awareness, create a gap in addressing EE improvements as such improvements typically place low on a typical multi-family housing unit's priority list. Through the direct installation and renovation/rehabilitation implementation framework, this program fills the gap and provides substantial energy savings.

The objectives of the program are to:

- Reduce peak demand and overall energy consumption in the multi-family housing market;
- Promote EE retrofits for both dwelling units and common areas; and
- Increase overall awareness about the importance and benefits of EE improvements to the landlord and property ownership community.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

TEP installed a combination of measures to assist over 5,357 individual multi-family units. Of these units, we installed 30,355 LEDs, 3,096 Low-Flow showerheads, 3,318 bathroom faucet aerators, 1,566 kitchen faucet aerators, and 3,791 HVAC tune-up measures.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Multi-Family	$807,273	$0	$0	$518,519	$902	$0	$3,764	$1,330,459

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 2.**

f. kW, kWh, and Therm Savings

Measure Category	Measures Installed	kW Savings	kWh Savings
Aerator	4,884	18	269,620
HVAC	1,423	580	749,822
Showerhead	3,096	33	484,079
Tune Up	3,791	686	827,231
Lighting	30,355	103	1,061,845
Totals	**43,549**	**1,421**	**3,392,597**

Savings are adjusted for line losses of 12.76 percent for both demand and energy savings (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

During implementation of the Advanced Tune-Up measures, opportunities to address customer participation via additional measures such as the Existing Homes Program "Early Retirement" and "HVAC QI Replace On Burn-Out" arose, but these measures have not been approved for use in the Multi-Family Program. TEP filed for the additional multi-family measures in the 2018 EE Implementation Plan.

k. Program Modifications

No program modifications were made during this reporting period.

l. Programs or Measures Terminated

TEP does not plan to terminate this program or associated measures in 2018. No measures were terminated during this reporting period.

4.6 Residential New Construction Program

a. Description

The Residential New Construction Program for TEP is marketed as the Energy Smart Homes ("ESH") Program. The ESH Program emphasizes the whole-house approach to improving health, safety, comfort, durability, and energy efficiency. The program promotes homes that meet the Environmental Protection Agency ("EPA")/Department of Energy ("DOE") Energy Star® Home performance requirements. To encourage participation, the program provides incentives to homebuilders for each qualifying home. On-site inspections and field testing of a random sample of homes is required to ensure that homes meet the Energy Star® Home performance requirements; on-site inspections are conducted by third-party Residential Energy Services Network ("RESNET") certified energy raters selected by each builder. Components of the ESH Program include development of branding, builder training curriculum, and marketing materials.

b. Program Goals, Objectives, and Savings Targets

The objectives of the program are to:

- Reduce peak demand and overall energy consumption in new homes;
- Stimulate construction of new homes that are inspected and tested to assure energy performance;
- Stimulate energy efficiency standards that are higher than EPA/DOE, Energy Star® performance standards;
- Stimulate the installation of high efficiency heating and cooling systems, envelope, lighting, and fixed appliances (Energy Star® products);
- Cultivate customer demand, and a qualified contractor base, for comprehensive energy efficiency retrofits in alignment with the "Home Performance with Energy Star" program:

  http://www.ENERGY STAR®.gov/index.cfm?fuseaction=hpwes_profiles.showsplash
- Work with local builders to construct energy-efficient homes;
- Educate consumers on the benefits of Energy Star® Homes;
- Transform the market by improving construction practices in the TEP service territory;
- Assist sales agents with promoting and selling of energy efficient homes;
- Train builder construction staff and sub-contractors in advanced building-science concepts to reach energy efficiency goals through improved design and installation practices;
- Increase homebuyer awareness and understanding of energy-efficient building practices and the benefits of purchasing an energy-efficient home; and
- Encourage participation in the ESH Program by providing incentives to homebuilders for each qualifying home.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

A total of 589 homes were constructed by participating builders during this reporting period.

d. Costs Incurred

Costs incurred during this reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Residential New Construction	$299,700	$2,108	$0	$6,973	$26,141	$0	$1,641	$336,563

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 2**.

f. kW, kWh, and Therm Savings

No. of Homes	kW savings	kWh savings	Therm savings
757	1,612	1,965,818	134,050

Savings are adjusted for line losses of 12.76 percent for both demand and energy savings (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

There were no problems encountered during this reporting period.

k. Program Modifications

There were no program modifications during this reporting period.

l. Programs or Measures Terminated

TEP does not plan to terminate this Program or associated measures in 2018. No measures were terminated during this reporting period.

4.7 Shade Tree Program

a. Description

The TEP Shade Tree Program, is marketed under the name of "Trees for You" and has been in operation since December 1992. Desert-adapted trees are provided to individual residences, residential neighborhoods, low-income families, as well as to community areas, and schools. Residents are allowed three, five-gallon trees per year, which must be planted on the south, west, or east side of the home. Residents complete an online application and pay for the tree(s) via TEP's website, which includes the type of tree requested and the location where it will be planted, a nominal fee of $5.00 per tree, and pick up the tree at a partnered nursery of their choice.

b. Program Goals, Objectives, and Savings Targets

The objective of the program is to promote energy conservation and the environmental benefits associated with planting low water usage trees. Along with the energy savings trees provide to the homes, trees also provide habitat for wildlife, absorb air and water pollutants, control storm water runoff and soil erosion, and provide an aesthetic beauty to neighborhoods and the community.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

A total of 3,526 customers participated in the program during this reporting period.

For this reporting period, TEP exceeded the program goal of 6,500 trees and distributed a total of 6,753 trees (6,720 five gallon trees and 33 fifteen gallon trees).

d. Costs Incurred

Costs incurred for this Program during this reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Shade Tree Program	$141,011	$523	$0	$643	$2,456	$0	$652	$145,285

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 2.**

f. kW, kWh, and Therm Savings

Number of Trees Distributed	kW savings	kWh savings
7,248	199	477,380

Savings are adjusted for line losses of 12.76 percent for both demand and energy savings (excluding therms).

g. Environmental Benefits realized
Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits
Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year
Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions
There were no problems encountered during this reporting period.

k. Program Modifications
Due to a high demand for this program TEP and its implementation contactor put the program on hold from June 1, 2017 until September 1, 2017. During that time, customers were not able to purchase trees. When the blackout period ended, the limit of trees per-customer per-calendar year was reduced from three to two trees. These changes allowed TEP to keep the program functioning during times of high demand and allowed for the implementation contractor to maximize their growing period for the following season. TEP plans to keep the summer blackout period in effect for 2018.

l. Programs or Measures Terminated
TEP does not plan to terminate this program or associated program measures in 2018. No measures were terminated during this reporting period.

Non-Residential Sector

4.8 Bid for Efficiency ("BFE") Program

a. Description
TEP's BFE Program is an existing program most recently approved in Decision No. 75450 (February 11, 2016). The program is designed so customers or project sponsors can propose their own energy efficiency projects and then bid competitively for incentives within the program guidelines. TEP selects winning bids based on specified criteria. BFE participants and project sponsors include commercial or industrial customers, Energy Service Companies or other aggregators who organize proposals that involve multiple sites.

b. Program Goals, Objectives, and Savings Targets
The program encourages customers and project sponsors to think creatively and to develop projects designed to optimize system energy use as a whole, rather than considering the energy usage of each individual piece of equipment. The program fosters customer-driven project activity (e.g., customers select appropriate measures and professionals to implement measures), and encourages the implementation of comprehensive, multi-measure projects. Program goals include:

- Ensure projects are submitted, approved, implemented, and verified in a timely manner;
- Allow projects to be customer-driven; the customer or project sponsor will select appropriate trade and professional allies to design and implement projects;
- Encourage implementation of multiple measures; and

- Encourage applications that aggregate measures at multiple sites.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

A total of five projects were completed in the program during this reporting period.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Bid For Efficiency (Pilot)	$35,485	$0	$0	$31,514	$0	$0	$99	$67,097

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 2**.

f. kW, kWh, and Therm Savings

Measure Category	No. of Projects	kW savings	kWh savings
BFE	5	11	113,112

Savings are adjusted for line losses of 12.76 percent for both demand and energy savings (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

In an effort to provide energy saving services to a typically under-represented segment of customers, TEP targeted small, locally owned markets serving lower-income neighborhoods to participate in this Program. As locally owned markets typically lack access to funds to improve their facilities, the most cost-effective projects were selected for participation, with a goal of helping these markets continue to provide service in the neighborhoods where they are located.

k. Program Modifications

No modifications were made to this program during the reporting period.

l. Programs or Measures Terminated
TEP plans to terminate this program and associated measures in 2018, due to lack of participation.

4.9 Combined Heat & Power ("CHP") Pilot Program

a. Description
The CHP Program is an existing program approved in Decision No. 74885 (December 31, 2014). CHP, also defined as "cogeneration," means a system that generates electricity and useful thermal energy in a single integrated system.

b. Program Goals, Objectives, and Savings Targets
CHP is an affordable, clean and reliable source of generation and should be considered a key component to a cost-effective EE plan. The market potential for CHP is limited because only certain commercial customers have a need for thermal energy. TEP will assist customers interested in CHP with engineering and interconnection services. Qualifying CHP customers save on utility bills by not having to utilize a Partial Requirement Service rate.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation
There were no new CHP installations during this reporting period.

d. Costs Incurred
There were no costs reported during this reporting period.

e. Evaluation and Monitoring Activities and Results
There were no savings during this reporting period to evaluate.

f. kW, kWh, and Therm Savings
There was no increase in incremental energy savings in existing CHP systems and no new participation in 2016.

g. Environmental Benefits realized
Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits
Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year
Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions
No problems were encountered during this reporting period.

k. Program Modifications
No modifications were made to this program during this reporting period.

l. Programs or Measures Terminated

TEP does not plan to terminate this program or associated measures in 2018. No measures were terminated during this reporting period.

4.10 Commercial & Industrial ("C&I") Comprehensive Program

a. Description

The TEP C&I Comprehensive Program, marketed as the "EasySave Plus" program, is a multi-faceted program that provides incentives to TEP's large commercial customers for the installation of energy-efficiency measures including lighting equipment and controls, HVAC equipment and controls, HVAC system test and repair motors and motor drives, plug load equipment, and refrigeration. The program also provides customers with the opportunity to propose innovative energy efficiency solutions through custom energy efficiency measures.

b. Program Goals, Objectives, and Savings Targets

The primary goal of the program is to encourage TEP's non-residential customers to install energy efficiency measures in existing facilities. More specifically, the program is designed to:

- Provide incentives to facility operators for the installation of high-efficiency lighting equipment and controls, HVAC equipment and controls, HVAC system test and repair, premium efficiency motors and motor controls, plug load equipment, and energy-efficient refrigeration system retrofits;
- Overcome market barriers, such as:
  - Lack of awareness and knowledge about the benefits and cost of energy efficiency improvements;
  - Performance uncertainty associated with energy efficiency projects; and
  - High first costs for energy efficiency measures.
- Create a clear, easy to understand, and simple participation process; and
- Increase the awareness and knowledge of facility operators, managers, and decision-makers on the benefits of high-efficiency equipment and systems.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

A total of 378 customers participated in the program during this reporting period.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
C&I Comprehensive Program	$3,850,448	$3,265	$383	$854,291	$8,613	$0	$43,130	$4,760,128

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 2**.

f. kW, kWh, and Therm Savings

Measure Category	No. Measures Installed	kW savings	kWh savings
Custom	10,547	4,189	24,450,990
HVAC	985,068	1,201	2,588,357
Lighting	125,897	998	12,052,655
Motor	56	266	1,721,520
Refrigeration	92	13	92,799
Thermostats	0	0	0
Totals	**1,121,660**	**6,667**	**40,906,321**

Savings are adjusted for line losses of 12.76 percent for both demand and energy savings (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

No problems were encountered during this reporting period.

k. Program Modifications

Awaiting Commission approval on Docket No. E-01933-17-0250 (filed August 1, 2017), TEP plans to decrease the measure incentive payment cap from 75% (as previously set forth in Decision No. 70457, August 6, 2008), to 50% of the incremental cost of a measure utilizing the min/max model for program year 2018. In addition, TEP plans to decrease custom incentives levels to $0.06/kWh from current $0.10/kWh. Annual customer caps will be introduced to all Commercial & Industrial programs for 2018. Reducing the incentive payments and initiating customer caps will allow incentives for more customers who wish to participate in the program.

l. Programs or Measures Terminated

TEP does not plan to terminate this program in 2018, however. In 2018, plans to discontinue several existing measures which are no longer being cost-effective.

4.11 Commercial New Construction Program

a. Description

The Commercial New Construction Program is geared towards the building owner/developer and is designed to promote better energy efficiency in new commercial construction, compared to standard building practices.

The program includes incentives based on energy improvements over ASHRAE/IESNA Standard 90.1-2010 and energy design information resources for the building owner and developer, provides consumer education and promotional pieces designed to assist building owners/developers in understanding various energy efficiency options, and encourages them to explore energy efficiency options.

b. Program Goals, Objectives, and Savings Targets

The primary goal of the program is to encourage energy efficient new building design and construction for new commercial projects in TEP's service area. More specifically, the program is designed to:

- Provide incentives to building owners/developers to design and build more energy-efficient buildings;
- Overcome market barriers for more efficient new construction buildings;
- Create a clear and easy to understand participation process that does not unduly burden the design and construction time schedule or budget process;
- Increase the awareness and knowledge of building owners/developers, architects, engineers, and decision-makers on the benefits of high efficiency buildings design; and
- Encourage building owners/developers and the design community to consider energy efficiency options as early in the design process as possible.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

There were nine participants in the program during this reporting period.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Commercial New Construction Program	$114,220	$0	$0	$66,334	$0	$0	$1,371	$181,925

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 2.**

f. kW, kWh, and Therm Savings

Measure Category	Number of Projects	kW savings	kWh savings
Commercial New Construction	38	141	1,182,427

Savings are adjusted for line losses of 12.76 percent for both demand and energy savings (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

No problems were encountered during this reporting period.

k. Program Modifications

No program modifications were made during this reporting period.

l. Programs or Measures Terminated

TEP does not plan to terminate this program or associated measures in 2018. No measures were terminated during this reporting period.

4.12 Retro-Commissioning Program ("RCx")

a. Description

The Retro-Commissioning program is an existing program most recently approved in Decision No.75450 (February 11, 2016). The program assists customers identify building equipment and processes that are not achieving optimal efficiency in existing facilities. Eligible program applicants receive subsidized screening energy audits. Participants also receive training to ensure proper operating and maintenance practices over time.

b. Program Goals, Objectives, and Savings Targets

The primary goal of the RCx program is to generate significant energy savings by retro-commissioning existing C&I facilities. The program delivers customer benefits by lowering energy bills and energy usage, and improving building performance and occupant comfort while reducing maintenance calls. The program helps TEP develop an RCx contractor pool, and helps TEP to build relationships with C&I customers, thus leading to other areas of participation in TEP's portfolio of EE programs. RCx programs in other utility service territories have delivered average energy savings in the range of 5 percent to 15 percent per facility, and measures implemented as a result of the program's activity typically pay for themselves in less than two years.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

There were three participants in the program during this reporting period.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Retro-Commissioning	$49,291	$0	$0	$29,797	$0	$0	$48	$79,136

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 2.**

f. kW, kWh, and Therm Savings

Measure Category	No. of Projects	kW savings	kWh savings
Retro-Commissioning	3	385	794,002

Savings are adjusted for line losses of 12.76 percent for both demand and energy savings (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

No problems were encountered during this reporting period.

k. Program Modifications

No modifications were made to this program during the reporting period.

l. Programs or Measures Terminated

TEP plans to terminate this program and associated measures in 2018, due to lack of participation.

4.13 Schools Energy Efficiency Program (Pilot)

a. Description

The TEP Schools Energy Efficiency Program is an existing program approved by the Commission in Decision No. 75450. The purpose of the program is to assist schools with limited resources and the inability to raise capital to improve the energy efficiency of their facilities.

b. Program Goals, Objectives, and Savings Targets

The primary objective of the program is to encourage K-12 schools in TEP's service area to install energy efficiency measures in existing facilities. More specifically, per Decision No. 75450, the Program incentivizes 100% of a participating school's cost of qualifying energy efficiency upgrades. There are no specific measures associated with this program as participating schools may use any prescriptive measure or custom application available in the C&I Comprehensive or Small Business programs.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

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c. Levels of Participation

A total of 15 customers participated in the program during this reporting period.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Schools Energy Efficiency Program (Pilot)	$647,270	$0	$0	$71,765	$0	$0	$0	$719,036

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 2.**

f. kW, kWh, and Therm Savings

Measure Category	No. Measures Installed	kW savings	kWh savings
Custom	83	142	1,654,600

Savings are adjusted for line losses of 12.76 percent for both demand and energy savings (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits
Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year
Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions
No problems were encountered during this reporting period.

k. Program Modifications
No program modifications were made during this reporting period. In its 2018 EE Plan, TEP requested to modify the pilot from two years to one and reduce the budget accordingly. TEP also requested a decrease in cap per public and or charter school in order to allow more schools to participate.

l. Programs or Measures Terminated
TEP does not plan to terminate this program or associated measures in 2018. No measures were terminated during this reporting period.

4.14 Small Business Direct Install Program

a. Description
The TEP Small Business Direct Install Program, marketed as the "EasySave" program, is designed to minimize barriers related to the implementation of energy efficiency improvements in the small business market, such as lack of capital, information search costs, transaction costs, performance uncertainty, and the so-called "hassle factor." The purpose of the program is to assist small firms, whose main focus is generally their core businesses, with analyzing their energy use and improve their energy efficiency.

The program is an upstream market program providing incentives directly to contractors for the installation of selected high efficiency lighting, plug loads, motors, HVAC, and refrigeration measures. In order to reduce overhead expenses, the program has employed internet-based measure analysis and contractor proposal processing which has made the process easier for both contractors and customers. The program includes customer and trade ally education to assist them with understanding the technologies being promoted, the incentives are offered, and how the program functions.

b. Program Goals, Objectives, and Savings Targets
The primary objective of the program is to encourage TEP's small business customers to install energy efficiency measures in existing facilities. Specifically, the program is designed to:

- Encourage small business customers to install high-efficiency lighting equipment and controls, HVAC equipment, and energy-efficient refrigeration system retrofits in their facilities
- Encourage contractors to promote the Program and provide turn-key installation services to small business customers;
- Overcome the unique market barriers of the small business market including:
    - First costs and lack of access to capital for energy efficiency improvements;

- Lack of awareness and knowledge about the benefits and costs of energy efficiency improvements;
- Product research, contractor selection, and transactions costs; (the "hassle factor") and
- Performance uncertainty associated with energy efficiency projects.

- Assure that the participation process is clear, easy to understand, and simple; and
- Increase the awareness and knowledge of business owners, building owners and managers, and other decision-makers on the benefits of high-efficiency equipment and systems.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

There were 137 participants in the program during this reporting period.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Small Business Direct Install	$454,830	$325	$594	$297,235	$3,224	$0	$21,645	$777,852

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 2.**

f. kW, kWh, and Therm Savings

Measure Category	No. Measures Installed	kW savings	kWh savings
HVAC	11	5	12,515
Refrigeration	2,074	92	662,287
Lighting	8,000	264	3,513,192
Custom	0	0	0
Totals	**10,085**	**361**	**4,187,993**

Savings are adjusted for line losses of 12.76 percent for both demand and energy savings (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

No problems were encountered during this reporting period.

k. Program Modifications

Awaiting Commission approval on Docket No. E-01933-17-0250 (filed August 1, 2017), TEP plans to decrease the measure incentive payment cap from 75% (as previously set forth in Decision No. 70457, August 6, 2008), to 50% of the incremental cost of a measure utilizing the min/max model for program year 2018. In addition, TEP plans to decrease custom incentives levels to $0.06/kWh from current $0.10kWh. Annual customer caps will be introduced to all C & I programs for 2018. Reducing the incentive payments and initiating customer caps will allow incentives for more customers who wish to participate in the program.

l. Programs or Measures Terminated

TEP does not plan to terminate this program or associated measures in 2018. No measures were terminated during this reporting period.

Behavioral Sector

4.15 Behavioral Comprehensive

a. Description

TEP currently offers educational programs for both residential and commercial customers, including a K-12 Education program for use in scholastic settings.

The Behavioral Comprehensive Program consists of four subprograms. The focus of the Programs is to educate current and future energy users on how changes in behavior, including purchasing decisions, can improve energy efficiency and help lower energy bills for the consumer. The subprograms include low-cost measures, such as LEDs, faucet aerators, low-flow showerheads, and LED nightlights and refrigerator thermometers, in addition to educational components.

The four subprograms consist of:

- Direct Canvassing
  The direct canvassing initiative is designed to reach homeowners and provide them with program collateral in relation to TEP's DSM program offerings. In addition, homeowners receive two LED bulbs to direct install in their homes.
- K-12 Education
  The K-12 education program is a three-part energy education program for middle school students that include a pre-visit lesson, an on-site classroom presentation, and a post visit activity; all aligned with the Arizona Department of Education middle school science standards. Students are instructed on how to save energy in their homes and are provided with a take-home energy efficiency kit, which includes items such as LEDs, LED nightlights, bathroom faucet aerators, and low flow showerheads. The kit allows the students to gain practical experience, by installing the items with their parents, which correlates with the curriculum presented at school.
- Community Education
  The community education program is designed to engage with community groups and work with public entities to offer energy efficiency workshops. Customers who attend the

workshop are educated on the benefits of energy efficiency emphasizing on behavioral changes that lead to energy savings. Participants are provided with an energy savings kit with a wide variety of sample of materials such as LEDs, LED nightlights, bathroom faucet aerators, and low flow showerheads to direct install in their homes.

- Lighting Outreach Promotions
  The Community Outreach program provides complimentary LEDs, and LED Nightlights through the participation of community events and through collaborations with community organizations. The program complements the presence of TEP at community events and its overall education and outreach efforts and energy efficiency messaging.

b. Program Goals, Objectives, and Savings Targets

The program objectives are to influence energy related behaviors including the following:

- Habitual behaviors
  - Adjust thermostat setting
  - Turn off unnecessary lights
- Small purchasing and maintenance behaviors
  - Purchase and install faucet aerators and low flow shower heads
  - Purchase and install compact fluorescent or LED light bulbs
  - HVAC maintenance
- Larger purchasing decisions
  - Purchase an ENERGY STAR® appliance
  - Purchase higher energy efficient heating and cooling equipment

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

- The K-12 Education Program distributed 7,200 Energy Saving Kits in the Bright Students Program and an additional 5,600 kits in the Safety Land Program, totaling 12,800 kits distributed in 2017.
- 1,650 Community Energy Saving Kits were distributed.
- 60,000 LEDs were distributed to TEP customers through a variety events within the service territory. Methods of delivery included Home Shows, community events, service organizations, and fairs.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below.

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Behavioral Comprehensive	$150,664	$9,300	$0	$211,375	$37,651	$6,757	$5,363	$421,110

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 2.**

f. kW, kWh, and Therm Savings

Measure Category	No of Measures	kW savings	kWh savings
Lighting Outreach	60,000	204	2,098,854
Community Education	1,934	26	352,218
Direct Canvassing	0	0	0
K-12 Education	12,800	151	2,115,224
Totals	**74,734**	**381**	**4,566,296**

Savings are adjusted for line losses of 12.76 percent for both demand and energy savings (excluding therms). 81,133 total therm savings were verified for this program.

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

No problems were encountered during this reporting period.

k. Program Modifications

DIRECT CANVASSING

No program modifications were made during this reporting period.

K-12 EDUCATION

In 2017, the TEP Residential EE Department and TEP Safety Department executed a collaborative initiative to introduce safety and energy efficiency into the elementary schools. Students are instructed on electrical safety and how to save energy in their homes. Students are provided with a take home kit which includes EE items such as LEDs and LED Nightlights.

COMMUNITY EDUCATION

No program modifications were made during this reporting period.

LIGHTING OUTREACH PROMOTIONS

There were no program modifications during this reporting period. In 2018, UNS Electric proposes discontinuing direct canvasing due to high cost and lack of impact on peak demand, low-income customers, and schools. UNS Electric proposes Lighting Outreach Promotion to be titled Community Outreach to allow approved program measures to be used.

l. Programs or Measures Terminated

TEP does not plan to terminate this program, however plans to terminate the Direct Canvassing measure in 2018.

4.16 Home Energy Reports

a. Description

The Home Energy Reports Program, approved by the Commission in Decision No. 75450, is designed to promote behaviors that conserve energy, such as turning off lights or appliances, adjusting thermostat setpoints, and performing regular equipment maintenance. The program encourages behavioral changes through targeted and comparative education and awareness of customer's energy consumption through regular energy consumption and tips on how a customer's behavior and light or appliance use modifies the customer's energy consumption.

b. Program Goals, Objectives, and Savings Targets

The program objectives are to influence energy related behaviors by providing customers i) regular energy consumption reports and tips on how to conserve energy, ii) engaging customers about their behavior and their installed products to enhance the accuracy of the energy reports, and iii) participants will receive a HER starter kit that includes four LED light bulbs. Additionally, the program will encourage customers to take advantage of other DSM related programs, promote efficient home operations, and lower customer's energy bills.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

A total of 12,874 customers were enrolled in the program during this reporting period.

d. Costs Incurred

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Home Energy Reports	$234,069	$0	$0	$406,323	$0	$12	-$1,613	$638,792

e. Evaluation and Monitoring Activities and Results

There was no third-party MER activity during this reporting period. Associated MER costs listed above were incurred during the RFP process.

f. kW, kWh, and Therm Savings

Measure Category	No of Participants	kW savings	kWh savings	Therm savings
Home Energy Reports	12,838	806	5,711,076	0

g. Environmental Benefits realized

There were no environmental benefits realized during this reporting period.

h. Incremental benefits and net benefits

There were no incremental benefits and net benefits realized during this reporting period.

i. Performance-incentive calculations for the previous year
There is no performance incentive for this program for this reporting period.

j. Problems Encountered and Proposed Solutions
No problems were encountered during this reporting period.

k. Program Modifications
There were no program modifications during this reporting period.

l. Programs or Measures Terminated
TEP does not plan to terminate this program or associated measures in 2018. No measures were terminated during this reporting period.

Support Sector

4.17 Consumer Education and Outreach Program

a. Description

The Consumer Education and Outreach Program is responsible for the marketing of the TEP portfolio as a whole, as well as general consumer education. The focus of activities are as follows:

- Develop brochures and communications materials that showcase all available EE programs;
- Develop and maintain communication material related to general energy savings information;
- Provide labor and materials to staff trade shows and community events;
- Develop and maintain web content and use technology to educate consumers on energy use and Time-of-Use ("TOU") rate choices; and
- Provide cross communication of EE Programs and general energy savings information.\

The Company continues to educate its employees about the Company's DSM programs and emphasizes the importance of TEP employees helping to ensure the success of the programs.

b. Program Goals, Objectives, and Savings Targets
The program is designed to educate commercial and residential customers on ways to save energy through conservation measures, energy-efficiency measures, academic education, or utilizing Time-of-Use ("TOU") rates.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

TOU Customer Participation

During this reporting period 3,857 commercial and residential customers were enrolled in TOU pricing plans.

Community Events

TEP participated in community events featuring information on energy conservation. Listed below are examples of events attended:

- Southern Arizona Girl Scout's Cookie Drop Off
- Tucson Festival of Books
- Earth Day Festival
- Pima Council on Aging "Ages 'N Stages"
- SAHBA Home Show
- Downtown Second Saturdays
- University of Arizona Football Games
- Celebracion Independencia de Mexico Festival
- Tucson Kids Fest
- Menlo Park Resource Fair
- Annual Desert Horticulture Conference
- Reid Park Zoo's Summer Safari Nights
- Sunnyside School District's Battle of the Buildings Energy Savings Kickoff
- Edible Shade Tree Event
- Oro Valley Music Festival
- Festival De Dar Gracias
- Winterhaven's Festival of Lights
- 2017 TEP BrightEE Awards - Presented TEP BrightEE (pronounced "brighty") Awards to customers and contractors who used the company's cost-effective energy efficiency (EE) programs to achieve significant energy savings and environmental benefits.

d. Costs Incurred

Costs incurred during this reporting period are listed below.

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Consumer Education & Outreach Program	$0	$0	$291,777	$13,181	$217,153	$172	$513	$522,796

e. Evaluation and Monitoring Activities and Results

There were no claimed savings during this reporting period to evaluate and there is no third-party evaluation for this program.

f. kW, kWh, and Therm Savings

There are no claimed energy savings to report for this program.

g. Environmental Benefits realized
There are no realized environmental benefits for this program.

h. Incremental benefits and net benefits
There are no incremental benefits and net benefits for this program.

i. Performance-incentive calculations for the previous year
There are no performance-incentive calculations for this program.

j. Problems Encountered and Proposed Solutions
No problems were encountered during this reporting period.

k. Program Modifications
There were no program modifications during this reporting period.

l. Programs or Measures Terminated
TEP does not plan to terminate this program or associated measures in 2018. No measures were terminated during this reporting period.

4.18 Energy Codes and Standards Enhancement Program

a. Description
The Energy Codes and Standards Enhancement Program is an existing program most recently approved by the Commission in Decision No. 75450. The Program maximizes energy savings through promoting adherence to local building energy codes, the adoption of current nationally or internationally recognized building codes, and through enhanced energy efficient appliance standards. The program uses a variety of methods to i) improve levels of compliance with existing building energy codes and appliance standards; and ii) support adoption of newer energy codes and appliance standards as warranted by market conditions. Specific program activities target needs of local building officials. The program includes, but is not limited to, the following:

- Educating local code officials, building professionals, and contractors on current standards and development;
- Providing documentation of the specific local benefits of code enforcement and the promotion of newer energy code adoptions over time;
- Ensuring utility incentive programs align with local energy codes and appliance standards; and
- Collaborating with relevant stakeholders to build a more robust community while advancing the adoption and implementation of strong, effective building energy codes and appliance standards across the local jurisdictions within TEP's service territory.

b. Program Goals, Objectives, and Savings Targets
The program is designed to increase energy savings in the residential and commercial sectors by improving levels of building code compliance, supporting periodic energy code updates/adoptions as warranted by market conditions, and advocating for higher efficiency electric appliances.

The 2017 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

Program activities were selected based on previously effective approaches used in other jurisdictions, feedback from local code officials, and contacts with municipal leaders. Program staff maintains a consistent level of activity and engagement with relevant stakeholders. Activities include: participation in energy code adoption committees, technical support (calculations, research, information) for code adoption committees, public testimony in support of code adoption before city councils, participation in organizations that promote increased appliance standards for EE (such as the Consortium for Energy Efficiency and National Energy Codes Conference), ensuring that ongoing DSM programs align with energy code requirements and appliance standards, and funding for local agencies to enforce and improve energy codes and appliance standards over time.

Outreach strategies include website promotion, direct outreach to local code officials and networks of municipal leaders who are members of committees conducting activities related to building code enhancement, and communications with other TEP EE program implementation staff.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Energy Codes and Standards	$0	$3,016	$0	$0	$0	$0	$40	$3,057

e. Evaluation and Monitoring Activities and Results

TEP staff attend, support, and participate in meetings and organizations that encourage the understanding, adoption, and enforcement of building codes, receive feedback from participants on staff interaction with the meeting attendees, and then review and evaluate the feedback.

f. kW, kWh, and Therm Savings

No. of Events	kW savings	kWh savings
9	2,245	10,086,145

Savings are adjusted for line losses of 12.76 percent for both demand and energy savings (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year
There are no performance-incentive calculations for this program.

j. Problems Encountered and Proposed Solutions
No problems were encountered during this reporting period.

k. Program Modifications
There were no modifications were made to this program during this reporting period.

l. Programs or Measures Terminated
TEP does not plan to terminate this program or associated measures in 2018. No measures were terminated during this reporting period.

Utility Improvement Sector

4.19 Commercial and Industrial Demand Response Program

a. Description
The C&I Demand Response program, marketed as the "TEP C&I DLC" program, is designed to manage peak demand and mitigate system emergencies through a C&I load curtailment program. The program is delivered on a turn-key basis by an IC that negotiates load reduction agreements with multiple customers and "aggregates" those customers to provide TEP a confirmed and guaranteed load reduction capacity available upon request. The program was originally expected to provide up to 40 MW of summer peak demand reduction, available for up to 80 hours per year, with a typical load control event lasting 3 to 4 hours.

TEP has also partnered with municipal water utilities to initiate load control events on their pumping systems. Participating municipal water pumping customers have existing switching equipment and onsite back-up power generation. For these customers TEP has devised a delivery mechanism that uses TEP owned communications equipment to remotely control the customer's switching equipment via access to the customer's networked control system. The remote access delivery method is done at a lower cost than alternatives and increases the cost-effectiveness of the program.

b. Program Goals, Objectives, and Savings Targets
The primary goal of the program is to provide a capacity resource for peak demand, available for up to 80 hours per year, in order to mitigate system emergencies.

The 2017 annual goal was 20,445 equivalent MWhs of load reduction.

c. Levels of Participation
The IC enrolled 71 participating customers and TEP's program managers enrolled 145 participating water utility pumping sites.

d. Costs Incurred[7]

Costs incurred during this reporting period are listed below.

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
C&I Direct Load Control Program	$0	$3,646	$0	$489,150	$0	$27,627	$3,409	$523,832

e. Evaluation and Monitoring Activities and Results

NCI performed an annual analysis for the program to verify coincident demand and energy credit. The NCI MER report is attached in **Appendix 2**.

f. kW, kWh, and Therm Savings

The EE Standard allows a credit for demand response and load management programs per AAC R14-2-2404 (C). Peak reduction capability may be converted to an annual energy savings equivalent based on an assumed 50 percent load factor. The credit shall not exceed 10 percent of the annual standard. The following table shows the allowable credit for this program based on the available capacity reduction and the 10 percent cap.

Participants	Number of Events	kWh savings credit	Maximum kW Commitment
71	17	20,445,405	31,306

Savings are adjusted for line losses of 12.76 percent for both demand and energy savings (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

Program growth has continued to be challenging. TEP continued a program variation to allow customers to choose between the Standard program offering and an Emergency program offering. Customers with back-up generation that did not qualify to participate in the Standard offering, due to NESHAP (National Emission Standards for Hazardous Pollutants) compliance, can qualify to participate in the Emergency offering.

An event under the parameters of the Emergency offering can only be triggered in case of a NERC Energy Emergency Alert (EEA) Level 2 (as defined by the NERC Reliability Standard EOP-002-3) or as a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency. Customers with non-NESHAP compliant generators are restricted to 15 hours of operation per year, so these customers receive a smaller incentive than customers

[7] Program implementation costs include $199,145 paid to participating customers

participating in the Standard offering. The Emergency offering also requires participants to curtail load within 10 minutes, versus 30 minutes for the Standard offering. The result is more customer participation in the case of an EEA Level 2 event, at less cost per participant. TEP continues the Emergency Program offering introduced in September 2015.

The Implementation Contractor has not been able to increase participation and achieve the levels originally anticipated and is no longer interested in continuing as the Implementation Contractor. The program has been a successful asset in the TEP Portfolio. As a result, TEP has entered into a transition period to bring the program implementation in house.

Implementing the program in house will increase cost effectives and allow for the potential of future growth.

k. Program Modifications

On April 1 of 2018, TEP will assume full implementation of the Commercial and Industrial Demand Response Program in house and call it SmartDR.

l. Programs or Measures Terminated

TEP does not plan to terminate this Program or associated measures in 2018. No measures were terminated during this reporting period.

4.20 Conservation Voltage Reduction ("CVR")

a. Description

The CVR program is an existing program most recently approved by the Commission in Decision No. 75450. The program achieves load reductions through changes in voltage regulation parameters at the substation/feeder level.[8] This change involves a physical adjustment in transformer settings governing voltage at the substation. By adjusting substation voltage, the program impacts energy flows and capacity, including demand coincident with the system peak period(s).

b. Program Goals, Objectives, and Savings Targets

Changes in voltage translate into demand and energy savings through the basic physical relationships governing power: Watts = Volts X Amps. For this program, reducing the voltage reduces demand and reduces consumption. The change in voltage targeted by this program is approximately 2 percent which will fall within the tolerance bandwidth required to ensure power quality and equipment performance by end-use customers. In most instances, customers will neither notice, nor experience, any negative changes in equipment performance (e.g., air-conditioning, lighting and motor performance and use), resulting from the change in voltage.

TEP did not have any new CVR projects in 2017.

c. Levels of Participation

The year-long pilot program was initiated by TEP Engineering in November 2014 and completed in November 2015.

[8] Schneider, et al. "Evaluation of Conservation Voltage Reduction (CVR) on a National Level." Pacific Northwest National Laboratory. July 2010

d. Costs Incurred
Per Decisions No. 74885 and No. 75450 expenses incurred by this program may not be recovered through the DSM surcharge.

e. Evaluation and Monitoring Activities and Results
There was no third-party MER activity for energy savings during this reporting period.

f. kW, kWh, and Therm Savings
There are no reported savings for this program during this reporting period.

g. Environmental Benefits realized
There are no reported environmental benefits for this program during this reporting period.

h. Incremental benefits and net benefits
There are no reported incremental or net benefits for this program during this reporting period.

i. Performance-incentive calculations for the previous year
There are no performance-incentive calculations for this program.

j. Problems Encountered and Proposed Solutions
There were no problems encountered during this reporting period.

k. Program Modifications
No modifications were made to this program during the reporting period.

l. Programs or Measures Terminated
TEP does not plan to terminate this program or associated measures in 2018. No measures were terminated during this reporting period.

4.21 Generation Improvement and Facilities Upgrade

a. Description
The Generation Improvement and Facilities Upgrade Program includes installation of high efficiency motors and variable speed drives, along with projects to reduce a power plant's auxiliary power or increase capacity.

b. Program Goals, Objectives, and Savings Targets
There were no planned generation or facility upgrade projects during this reporting period.

c. Levels of Participation
No energy saving upgrades were installed during the reporting period.

d. Costs Incurred
Per Decisions No. 74885 and No. 75450 expenses incurred by this program may not be recovered through the DSM surcharge.

e. Evaluation and Monitoring Activities and Results
There are no reported activities for this program during the reporting period.

f. kW, kWh, and Therm Savings
There are no reported savings for this program during this reporting period.

g. Environmental Benefits realized
There are no reported environmental benefits for this program during this reporting period.

h. Incremental benefits and net benefits
There are no reported incremental or net benefits for this program during this reporting period.

i. Performance-incentive calculations for the previous year
There are no performance-incentive calculations for this program.

j. Problems Encountered and Proposed Solutions
There were no problems encountered during this reporting period.

k. Program Modifications
No modifications were made to this program during the reporting period.

l. Programs or Measures Terminated
TEP does not plan to terminate this program or associated measures in 2018. No measures were terminated during this reporting period.

Appendix 1 – Commission Approved DSM Programs and Measures for 2017

DSM Program	Approved Measures
Residential Sector	
Appliance Recycling	Refrigerator Recycling
	Freezer Recycling
Efficient Products	Advanced Power Strips-Load Sensor
	Energy Star Central AC
	Energy Star CFL
	Energy Star Clothes Washer
	Energy Star Freezer
	Energy Star Refrigerator
	Energy Star Room AC
	Residential LED Light
	Variable Speed Pool Pumps
Existing Homes	Duct Test & Repair (DTR) Tier 1 & Tier 2
	Early Retirement HVAC Quality Install
	Early Retirement HVAC Quality Install DTR Tier 1 & Tier 2
	HVAC Quality Install
	HVAC Quality Install DTR Tier 1 & Tier 2
	Smart Thermostats
	Advanced Tune-up
	Western Cooling Control™
Low Income Weatherization	Low Income Weatherization
Multi-Family	Advanced Tune-up
	Aerator
	Duct Test & Repair Tier 1 & Tier 2
	ES Integral CFL
	Low Flow Showerheads-Electric WH
	Residential LED
	Smart Thermostat
	Western Cooling Control™
Residential New Construction	Energy Efficient New Homes
Shade Trees	Shade Trees
Non-Residential Sector	
Bid for Efficiency	Bid for Efficiency
Combined Heat & Power ("CHP")	CHP Custom
C&I Comprehensive	15 SEER Packaged and Split AC's
	15 SEER Packaged and Split HPs

DSM Program	Approved Measures
	16 SEER Packaged and Split AC's
	16 SEER Packaged and Split HPs
	17 SEER Packaged and Split AC's
C&I Comprehensive	17 SEER Packaged and Split HPs
	18 SEER Packaged and Split AC's
	18 SEER Packaged and Split HPs
	Advanced Power Strips-Load Sensor
	Advanced Power Strips-Occupancy Sensors
	Advanced Power Strips-Timer Plug Strip
	Air-Cooled Chillers < 150 tons
	Air-Cooled Chillers >= 150 tons
	Anti-Sweat Heater Controls
	Beverage Controls ("Vending Miser")
	CO Sensors
	CO2 Sensors
	Computer Power Monitoring System
	Daylighting Controls
	Delamping
	Economizers
	EER Rated Packaged AC <5.4 Tons
	EER Rated Packaged AC >=20 Tons < 63.3 Tons
	EER Rated Packaged AC >=63.3 Tons
	EER Rated Packaged AC 11.25 - 20 tons
	EER Rated Packaged AC 5.4 - 11.25 tons
	EER Rated Packaged HP <5.4 Tons
	EER Rated Packaged HP >= 20 Tons
	EER Rated Packaged HP 11.25 - 20 tons
	EER Rated Packaged HP 5.4 - 11.25 tons
	Efficient Compressors
	Efficient Condenser
	EMS HVAC Delivery
	Energy Efficient Exit Sign
	Energy Efficient ODP Motors
	Energy Efficient TEFC Motors
	Evaporative Fan Controls
	Floating Head Pressure Controls
	Green Motor Rewind
	Hard Wired CFL
	Heat Pump Water Heaters
	HIDs to T8/T5-Exterior
	HIDs to T8/T5-Interior
	High Efficiency Evaporator Fan Motors (EC)

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DSM Program	Approved Measures
	High Efficiency Evaporator Fan Motors (PSC)
	High Efficiency Reach-In Refrigerators and Freezers
C&I Comprehensive	Hotel Room HVAC Control
	HVAC System Test and Repair
	Induction Lighting
	Induction Lighting Outdoor
	Integral Screw In CFL
	LED Indoor Lights
	LED Outdoor Lighting
	LED Traffic Lights
	LED Tubes Indoor
	LED Tubes Outdoor
	Occupancy Sensors
	Outdoor CFL
	Premium T8 Lighting
	Programmable Thermostat
	PTAC
	PTHP
	Pulse Start Metal Halide Exterior
	Pulse Start Metal Halide Interior
	Reach-In Cooler Controls ("Vending Miser")
	Refrigerated Display Automatic Door Closers
	Refrigerated LED Strip Lighting
	Screw in Cold Cathode CFL
	Shade Screen
	Snack Controls ("Vending Miser")
	Strip Curtain
	Variable Refrigerant Flow
	Variable Speed Drives
	Water-Cooled Chillers-Centrifugal < 150 Tons
	Water-Cooled Chillers-Centrifugal > 300 Tons
	Water-Cooled Chillers-Centrifugal 150-300 Tons
	Water-Cooled Chillers-Reciprocating All Sizes
	Water-Cooled Chillers-Screw <150 Tons
	Water-Cooled Chillers-Screw > 300 Tons
	Water-Cooled Chillers-Screw 150-300 Tons
	Window Films
CNC	Commercial New Construction
Retro Commissioning	Retro Commissioning
Schools Energy Efficiency ("EE") Pilot	Schools Energy Efficiency

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DSM Program	Approved Measures
Small Business Direct Install and School Facilities	15 SEER Packaged and Split ACs
	15 SEER Packaged and Split HPs
	16 SEER Packaged and Split ACs
Small Business Direct Install and School Facilities	16 SEER Packaged and Split HPs
	Advanced Power Strips-Load Sensor
	Advanced Power Strips-Occupancy Sensors
	Advanced Power Strips-Timer Plug Strip
	Anti-Sweat Heater Controls
	Beverage Controls ("Vending Miser")
	Daylighting Controls
	Delamping
	Economizers
	EMS HVAC Delivery
	Energy Efficient Exit Signs
	Hard Wire CFL
	HIDs to T8/T5-Exterior
	HIDs to T8/T5-Interior
	High Efficiency Evaporator Fan Motors (ECM)
	High Efficiency Evaporator Fan Motors (PSC)
	High Efficiency SEER Packaged and Split HPs
	HVAC System Test and Repair
	Induction Lighting Indoor
	Induction Lighting Outdoor
	Integral Screw in CFL
	LED Indoor Lights
	LED Outdoor Lighting
	LED Tubes Replacing Fluorescent Indoor
	LED Tubes Replacing fluorescent Outdoor
	Occupancy Sensors
	Outdoor CFL
	Premium T8 Lighting
	Programmable Thermostat
	PTAC
	PTHP
	Reach-In Cooler Controls ("Vending Miser")
	Refrigerated Display Auto Door Closers
	Shade Screen
	Snack Controls ("Vending Miser")
	Strip Curtain
	Variable Refrigerant Flow
	Variable Speed Drives

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DSM Program	Approved Measures
Behavioral Sector	
Behavioral Comprehensive	Lighting Outreach Promotion
	Community Education Kit
	Direct Canvassing Kit
	K-12 Education it
Home Energy Reports[a]	Home Energy Reports
Support Sector	
Consumer Education and Outreach	Education & Outreach
Energy Codes and Standards	Energy Codes and Standards
Utility Improvement Sector	
Conservation Voltage Reduction	Conservation Voltage Reduction (CVR)
Generation and Facilities Upgrades	Generation and Facilities Upgrades
C & I Demand Response	Demand Response/Direct Load Control

[a]This program was approved in 2016 but will not be fully implemented until 2017.

Appendix 2 – Navigant Consulting, Inc. 2017 Measurement, Evaluation, And Research Report

The Navigant Consulting, Inc. report is provided directly to Commission Staff.